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10/005,993	11/08/2001	Hany Aziz	D/A1407	3023

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EXAMINER

GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 11/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/005,993

Applicant(s)

AZIZ ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 27-30 and 41 is/are rejected.
- 7) ☒ Claim(s) 1-45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Amendment

1. This Office action is in response to the amendment dated August 29, 2003, paper no. 4. The specification has been amended. Claims 1, 27-32, 34, 37, and 42 were amended. New claims 43-45 were added. Claims 1-45 are pending.
2. The objections set forth in paper no. 3 (mailed June 19, 2003), paragraphs 1-5 are withdrawn.
3. The rejection of claims 1-9, 12-14, 22-24, 26, 32, 38, and 40-42 under 35 USC 102(b) as being anticipated by Nakaya et al. (US 5,792,557) set forth in paper no. 3, paragraph 7, is withdrawn due to the amendment.
4. The rejection of claims 15-17 and 39 under 35 USC 103(a) as being unpatentable over Nakaya et al. (US 5,792,557) set forth in paper no. 3, paragraph 10 is withdrawn.
5. The rejection of claims 18-21, 36, and 37 under 35 USC 103(a) as being unpatentable over Nakaya et al. (US 5,792,557) in view of Hosokawa et al. (US 5,458,977) set forth in paper no. 3, paragraph 11 is withdrawn.
6. The rejection of claims 29, 30, and 37 under 35 USC 103(a) as being unpatentable over Nakaya et al. (US 5,792,557) in view of Hosokawa et al. (US 5,458,977) in further view of Mishima (US 2001/0053462) A1) set forth in paper no. 3, paragraph 12 is withdrawn.

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7. The rejection of claims 25-28, 31, 34, and 35 under 35 USC 103(a) as being unpatentable over Nakaya et al. (US 5,792,557) in view of Mishima (US 2001/0053462) set forth in paper no. 3, paragraph 13 is withdrawn.

8. The rejection of claims 10, 11, and 33 under 35 USC 103(a) as being unpatentable over Nakaya et al. (US 5,792,557) in view of Nishi et al. (US 2002/0034659 A1) set forth in paper no. 3, paragraph 14 is withdrawn.

Terminal Disclaimer

9. The terminal disclaimer filed on August 29, 2003 disclaiming the terminal portion of any patent granted on this application, which would extend beyond the expiration date of US application serial numbers 10/005,930 and 10/005,970 has been reviewed and is accepted. The terminal disclaimer has been recorded.

10. The double patenting rejections set forth in paper no. 3, paragraphs 15 and 16 are withdrawn in light of the terminal disclaimer.

Claim Objections

11. Claim 44 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 44 does not appear to further limit claim 43. Clarification and/or correction are requested.

12. Claims 1- 45 are objected to because of the following informalities:

- a. In claim 1, part (v), "the mixed region; **and**" should be changed to "the mixed region; **or**".

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- b. In claim 2, "the group consisting of aromatic amines, porphyrins and indolocarbazoles, **and**" should be changed to "the group consisting of aromatic amines, porphyrins and indolocarbazoles, **or**".
- c. In claim 12, "(biphenyl TPD); **and** (B)" should be changed to "(biphenyl TPD); **or** (B)".
- d. In claim 13, "(p-biphenyl)-N,N'-diphenyl benzidine; **and** (B)" should be changed to "(p-biphenyl)-N,N'-diphenyl benzidine; **or** (B)".
- e. In claim 13, "(A) said hole transport material comprising said hole transport region (v) is" should be replaced with "wherein said hole transport region (v) contains a hole transport material", because the hole transport material has not been previously recited and therefore should not be "said hole transport material".
- f. In claim 16, it is suggested for the purpose of clarity that "copper phthalocyanine (CuPc)" be changed to "or a phthalocyanine comprising copper phthalocyanine (CuPc)". As presently written, copper phthalocyanine is included with the metal oxinoid group.
- g. In claim 22, "**and** (B)" should be changed to "**or** (B)".
- h. In claim 22, "**or** (iv)" should be changed to "**and** (iv)".
- i. In claim 25, "said thermal protective element" should be changed to "said thermal layer" for consistency with claim 1 terminology.
- j. In claim 25, it is suggested to delete "is present **and**", because the thermal layer is recited as present in amended claim 1.

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- k. In claim 30, "(DCJTB), and" should be changed to "(DCJTB), or".
- l. In claim 31, "thermal protective layer" should be changed to "thermal layer" for consistency with claim 1 terminology.
- m. In claim 34, "thermal protective layer" should be changed to "thermal layer" for consistency with claim 1 terminology.
- n. In claim 42, part (iv), "at least one of the first **and** second electrodes" should be changed to "at least one of the first **or** second electrodes".
- o. In claim 43, part (iv), "at least one of the first **and** second electrodes" should be changed to "at least one of the first **or** second electrodes".
- p. In claim 45, "between the first electrode in the mixed region" should be changed to "between the first electrode and the mixed region".
- q. In claim 45, "an electron transport region situated between" should be changed to "an electron transport region is situated between".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 27-30 and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
15. In claim 27, part (v), part (2), the "first layer" and the "said layers" are unclear. It is suggested for clarity that the language used in claim 31 for the cathode part (v) be

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substituted for the language in claim 27. In other words, it is suggested that part (v) in claim 27 be deleted and replaced with the following:

“(v) a cathode situated on the electron transport region comprised of one of (1) a layer comprised of Mg:Ag alloy or Al of a thickness of from about 50 nanometers to about 500 nanometers; or (2) a first layer comprised of from about 40 volume percent to about 55 volume percent of Mg; from about 2 volume percent to about 10 volume percent of Ag; and from about 55 volume percent to about 40 volume percent of Alq.sub.3, wherein the thickness of the first layer is from about 100 nanometers to about 600 nanometers, and coated with a second layer of a thickness of from about 50 nanometers to about 500 nanometers comprising a metal or a metal alloy;”

Clarification and correction are required.

16. Claim 29, part (v), part (2) is unclear, because two different thicknesses are recited for the “first layer” of the cathode. It is suggested, for clarity, that the language used in claim 31 for the cathode part (v) be substituted for the language in claim 29. In other words, it is suggested that part (v) in claim 29 be deleted and replaced with the following:

“(v) a cathode situated on the electron transport region comprised of one of (1) a layer comprised of Mg:Ag alloy or Al of a thickness of from about 50 nanometers to about 500 nanometers; or (2) a first layer comprised of from about 40 volume percent to about 55 volume percent of Mg; from about 2 volume percent to about 10 volume percent of Ag; and from about 55 volume percent to about 40 volume percent of Alq.sub.3, wherein the thickness of the first layer is from about 100 nanometers to about 600 nanometers, and coated with a second layer of a thickness of from about 50 nanometers to about 500 nanometers comprising a metal or a metal alloy;”

17. Claim 41 recites “said electron transport”. Claim 1, upon which claim 41 depends, recites both “an electron transport *material*” in part (ii) and an “electron transport *region*” in part (vi). It is unclear if the claim 41 limitation refers to the region or the material. Clarification and correction are required.

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Allowable Subject Matter


18. All the claims contain allowable subject matter with regard to the prior art, but are either objected to or rejected under 35 USC 112, second paragraph, as specifically indicated above. The closest prior art is Nakaya et al. (US 5,792,557), which teaches a mixed light emitting layer comprising a hole transport compound and sometimes an electron transport compound. Nakaya et al. fails to teach the specific layers of an EL device including a mixed region comprising biphenyl TPD as claimed in combination with a thermal layer coated on one of the electrodes.

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (703) 305-0788. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached at (703) 308-0449. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2351.


Dawn Garrett
Examiner
Art Unit 1774

D.G.
November 4, 2003